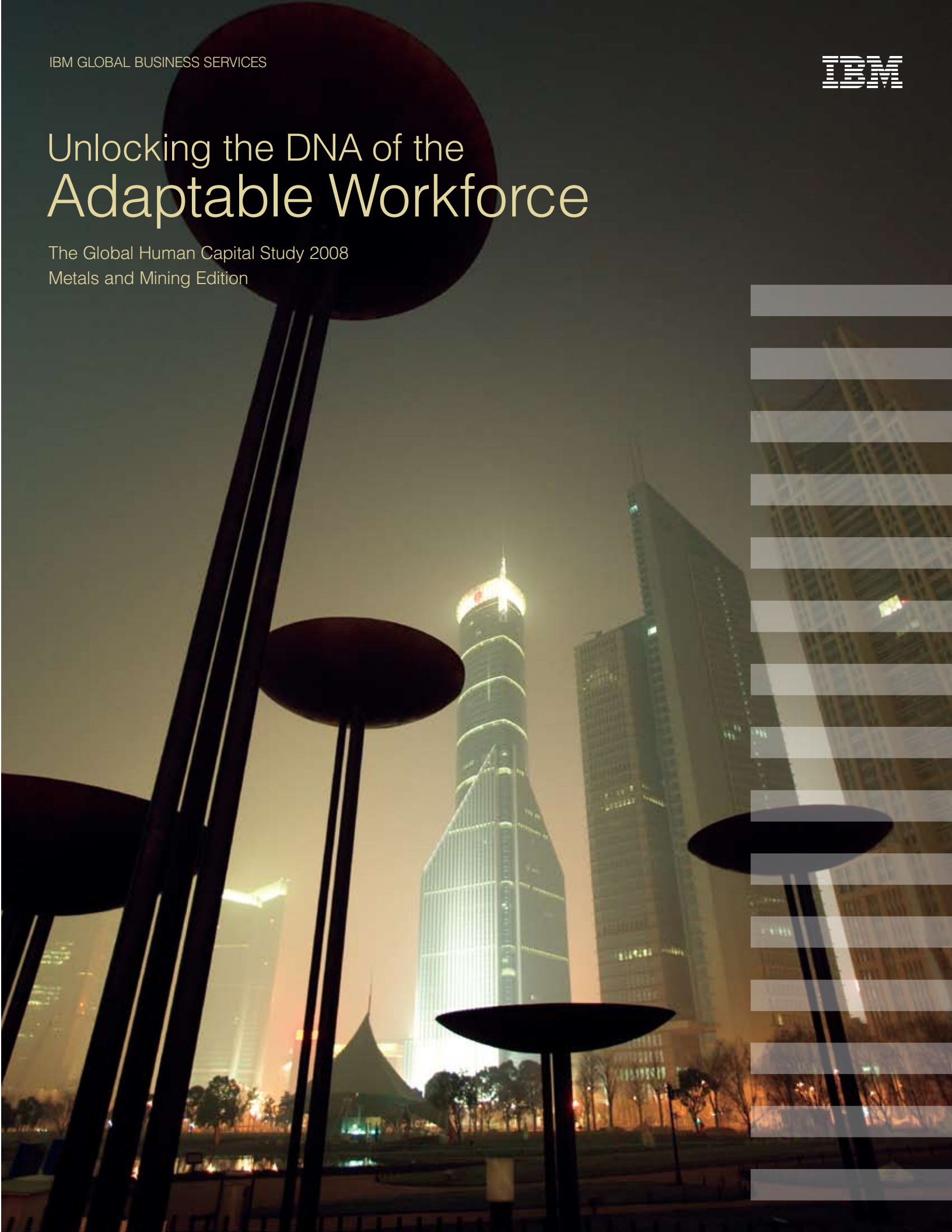


Unlocking the DNA of the Adaptable Workforce

The Global Human Capital Study 2008
Metals and Mining Edition





Unlocking the DNA of the Adaptable Workforce

“The only sustainable competitive advantage is the type of people you have and the way they work together.”

– Klaus Kleinfeld, President and Chief Operating Officer, Alcoa¹

Today, the metals and mining industries are rapidly changing. Based on a recent IBM survey of executives worldwide, we find that these industries are facing critical challenges in improving workforce adaptability, developing leaders, attracting and retaining employees and analyzing the workforce to make business decisions. Addressing these challenges will require a combination of executive focus, transformed processes and technology enablers.

As business becomes more global and competitive, companies are being challenged to reassess where and how products are made and marketed. A less understood challenge, however, is how to make the best use of the enterprise's most important asset: the workforce.

As part of IBM's comprehensive Global Human Capital Study 2008, which included more than 400 senior HR executives from 40 countries, we examined 51 metals, mining and industrial products manufacturers worldwide to understand how those companies are improving workforce performance. For additional insights, we also drew from a range of sources, including secondary

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research, financial analyses, previous IBM studies, IBM's extensive experience working with clients in a variety of industries and IBM's own internal transformation story.

Metals – Companies that focus on basic metals production (for example, steel and aluminum), sometimes with a secondary focus on manufacturing

Mining – Companies that explore for, mine, quarry and process basic metals, such as iron ore, copper, nickel and lead, as well as some nonmetals.

Our survey uncovered several leading concerns about the metals and mining workforce that directly relate to the business dynamics facing these industries today. The emergence of new markets in such regions as Asia is becoming increasingly important as the demand for resources and production capacity continues to rise. Such pressures are compelling companies to compete with a business model that

is global in scope. Right now, this globalization of the market is resulting in booming profits, even in the face of rising costs. New technologies are being used to reduce costs and improve top-line revenue. In addition, the metals and mining industries continue to grapple with a number of environmental and sustainability issues, including safety. Figure 1 summarizes how the workforce issues we uncovered relate to these industries' business realities.

Our study focuses on four workforce imperatives facing the metals and mining industries:

- An adaptable workforce that can rapidly respond to changes in the market
- Leadership to guide individuals through change and deliver results
- An integrated talent management model that addresses the entire employee lifecycle
- Data and information to deliver strategic insights and measure success.

Figure 1. Key business trends are linked to specific workforce issues.

	Building leadership talent	Developing employee skills	Aligning employee skills with business	Attracting new employees	Creating a learning culture	Retaining employee knowledge
Shifting markets from traditional to new regions	✓		✓			
Shifting production from traditional to new regions	✓	✓	✓	✓	✓	✓
Increasing importance of global customers and global competition	✓	✓	✓	✓	✓	
Rising costs	✓		✓			
Increasing environmental concerns	✓		✓			
Increasing use of new technologies		✓		✓	✓	
Looming talent and labor shortages		✓	✓	✓	✓	✓
Booming profits	✓		✓			

We believe the results from our survey provide guidance on achieving these goals not only to the HR function, but to the entire enterprise.

Developing an adaptable workforce: a critical capability

Today, most metals and mining companies must constantly change in the face of new market dynamics, rising costs, the introduction of new technologies and an evolving workforce. But we found that only 16 percent of metals and mining respondents believe their workforces today are *very capable* of adapting to change, despite the rapid shifts in these industries.

What do these leading-edge adapters do that others don't? Our findings suggest that three key capabilities influence the workforce's ability to adapt to change. First, workers must be able to collaborate across their organizations, connecting individuals and groups

that are separated by organizational boundaries and different physical locations. Second, workers need to effectively identify and locate experts. And last, organizations must be capable of predicting their future skill requirements to keep ahead of changing conditions.

COLLABORATE: Only 7 percent of the metals and mining survey respondents say they are *very effective* at collaboration – the ability to bring together workers to solve problems and to innovate, either formally or informally. To address this issue, a number of leading metals and mining companies are actively using technology enablers today for collaboration, knowledge sharing and learning, as Figure 2 indicates. However, our evidence indicates that the real hurdles to collaboration are not technology, but issues of the company culture. The top reasons given for lack of collaboration in metals and mining were *too busy to assist others* (53 percent), followed by *a lack of performance measures to reward collaboration* (34 percent) and *organizational silos* (31 percent).

Figure 2. Examples of leading companies that are using technology to collaborate, train and share knowledge.

	Knowledge sharing	Collaboration	Employee portal	Learning
Alcoa's global enterprise portal gives employees personalized access to content stores, personal productivity tools, the ERP system and Web and legacy applications.	✓		✓	
POSCO's Oracle-based enterprise portal gives employees access to e-mail, the HR system, expense system, their workspace and community, plus other systems that they are authorized to access.	✓	✓	✓	
POSCO is starting to use Cisco TelePresence technology for holding virtual "in person" meetings.	✓	✓		
Rio Tinto is using the Chronos e-learning system to provide training to 10,000 employees throughout the world.				✓
United States Steel's employee portal Web site contains a wide array of information for active and retired employees.			✓	

Sources: "Alcoa, Inc. Leverages Critical Enterprise Capabilities Through a Business-to-Employee Portal." Caggemini. 2003. http://www.us.caggemini.com/resources/casestudies/PDF/Alcoa_Portals03.pdf; "Resourcefulness Brings Greater Rewards for Alcoa Foundation's Global Giving." MicroEdge. <http://www.microedge.com/products/casestudies/us-AlcoaFoundation.pdf>; "Steel Manufacturer POSCO Speeds Up Business Communications with Cisco TelePresence." Press release. December 4, 2007. http://newsroom.cisco.com/dlls/global/asiapac/news/2007/pr_12-04.html; "Citrix Teams with Oracle to Extend Application Access Through Secure Enterprise Web Portals." Press release. November 2, 2002. http://www.citrix.com/English/ne/news/news_print_p.asp?newsID=2629; "Rio Tinto customises Chronos e-learning program." Chronos News. May 25, 2006. <http://www.sdchronos.org/en/news.htm>; United States Steel Employee Portal. <https://xnet2.uss.com/SBEP/login/login1.jsp>

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Such technology enablers initially can be a challenge to the operations workforce, which may be less familiar with Internet-based technologies. Companies also may face resistance from older members of the professional workforce when implementing these technologies. Despite such challenges, we believe technology enablers are crucial to competitive vitality, especially in a more globally integrated environment.

IDENTIFY EXPERTS: Only a small number of metals and mining respondents (14 percent) believe their companies are *very capable* of identifying individuals with specific expertise. Yet these days, finding experts quickly is critical for problem solving and for innovation, especially as enterprises grow and spread around the world. Our survey indicates that technology-based solutions are becoming increasingly popular ways for better identifying experts in the organization; tools such as employee directories, resume repositories and skills tracking databases top the list. Looking forward, emerging technologies such as automatic expertise locators and Web 2.0 social networking tools can identify experts according to a variety of criteria. These tools can identify experts across the whole enterprise, within a specific business unit or country or even based on proximity to the searcher. And some emerging tools can also identify the social connections that exist between knowledge seekers and sources. To optimize their value, however, these new tools need to be woven into the day-to-day fabric of work within the company culture.

ANTICIPATE FUTURE SKILL NEEDS: Only 13 percent of metals and mining respondents said that their organizations have a *very clear* understanding of the key workforce skills required in the next three to five years. Yet being able to anticipate future skill needs

is critical for success in a fast-changing industry. Meeting future skill requirements demands an understanding of the company's current skill inventory and business strategy for the future, combined with the ability to identify options for closing expected skill gaps. Those companies that can anticipate future workforce skill needs will gain a head start on adapting to rapidly changing business conditions.

Going forward, companies can improve workforce adaptability by focusing on:

- Fostering collaboration through communities, well-designed and aligned performance measures and collaborative technologies that are embedded into day-to-day processes
- Developing an expertise location capability that combines formal skills management efforts with employee profiles and other social networking technologies
- Reassessing skill needs based on likely future business scenarios for a changing industry, and training and/or hiring based on those projections.

Revealing the leadership gap – Future growth at risk

Great organizations develop leaders who deliver today's business results while guiding employees through ongoing turbulence and uncertainty. Highly skilled leaders are needed today as organizations face new challenges associated with globalization and increasing demand for innovation. Recent IBM research indicates that future leaders for the new global marketplace will need to excel at visioning, collaborating, evaluating and executing on a more complex, global stage.²

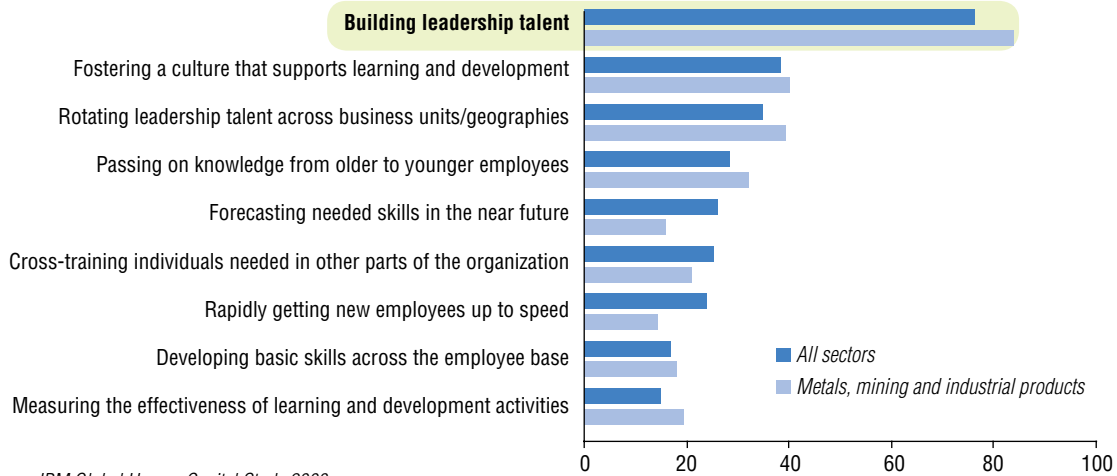
Metals and mining companies are no exception. In recent years, the leaders of these companies have been guiding their organizations through the shifts associated with more global business models, increasing environmental concerns and the issues associated with rapid growth. In our study, metals and mining companies expressed a deep concern over both current and projected shortages of leadership candidates, with more than 84 percent citing their top concern as the ability to develop future leaders. This concern is notably stronger in metals and mining than in other industries (see Figure 3).

Together with participants from our study, we believe leading companies need to develop a systematic approach for identifying future leaders from around

the globe (both within the company and beyond), providing those individuals with a broad range of job opportunities across their organizations and matching potential leaders with mentors who can share valuable knowledge and provide access to people networks. Leadership development managers need to reach far down into the organization, tap high-potential individuals early in their careers and provide them with the core skills they need to be able to identify new opportunities, develop innovative solutions and deliver results as leaders. For example, Anglo American, a metals and mining company that was formerly a regional player from South Africa, is now focusing its management development strategy on developing future leaders with the skills to run a global company.³

Figure 3. What do you see as the primary capability challenges facing your organization?

(Percent)



Source: IBM Global Human Capital Study 2008.

Leadership development at Rio Tinto

Rio Tinto has three main programs for managing talent: development actions, performance reviews and results, and career conversations. The latter is when managers once removed from employees' immediate supervisors chat with the employees about where they are going in their careers. For succession planning, Rio Tinto has managed succession plans for its top 200 employees, with immediate and one- to three-year successors.⁴

"A successful global company needs the best leadership talent," says Paul Skinner, Rio Tinto Chairman.⁵ The company needs to "ensure that it attracts and develops capable leaders ... to lead the company in the years to come," says Leigh Clifford, retired Chief Executive for Rio Tinto.⁶

Rio Tinto aims to develop a hierarchy of skills for different leadership levels. Specific qualities are emphasized at each management level based on the company's core leadership competencies, which include strategic effectiveness, commercial focus, operational delivery, business-focused collaboration, team leadership, external engagement, managing change and living the values.⁷

Perhaps most important to the success of developing future leaders, however, is the willingness of the entire organization to take responsibility for selecting leadership candidates and providing them with the appropriate guidance and experiences. While the HR function plays a major role in developing critical and creative pathways that allow individuals to advance their careers, only the organization as a whole can commit the resources and provide the supportive culture needed to make leadership development truly successful.

Going forward, companies can improve their leadership capabilities by:

- Managing potential leadership pools on a global basis
- Enabling future leaders to guide teams of employees who come from a diverse set of backgrounds and cultures
- Emphasizing action learning, mentoring and job rotation for leadership development programs
- Avoiding the loss of future leaders to the outside market by providing them with timely opportunities to apply their enhanced skills.

Cracking the code for talent

Metals and mining companies face an uphill battle in attracting talent. Their industries suffer from negative images; their workforces are aging and turning over too quickly; and not enough skilled professionals are being trained as replacements. Even so, almost 60 percent of metals and mining companies in our study believe they do a better job of attracting and retaining talent than their competitors. Is it safe to assume that those companies have really cracked the code for managing talent? Our experience suggests otherwise.

Skilled labor shortages and an aging workforce are major issues around the globe for metals and mining organizations. For example, Canada's mining industry will be short 81,000 employees over the next ten years.⁸ By 2015, Australia's mining industry will need 70,000 additional employees beyond the 120,000 it now has.⁹ Meanwhile, nearly 60 percent of the employees in the global steel industry were over the age of 41 in 2006, a historically high figure.¹⁰ Compounding this skills availability problem, 50 percent of our metals and mining survey respondents say that workforce turnover was higher this year than the previous year, and almost none see turnover decreasing in coming years.

Metals and mining companies also are challenged by the aging workforce in developed countries, which means that a good deal of informal company knowledge is now poised to be lost to retirement. Key company knowledge can be retained through a variety of methods, some of which are technology-based. For example, De Beers has used expert systems to store experienced workers' know-how related to using mining machinery in real-life practice.¹¹

In addition to retaining and developing employees, companies need to attract new workers. Yet the metals and mining industries face image problems that hinder recruiting. One steel company executive says that "steel still has this Rust Belt connotation to it... we have to do our own marketing to overcome that."¹² And a mining company executive says, "We need to shed those old stereotypes... to recruit the new generation of miners... We have an image we have to overcome."¹³

We believe that companies will have to become more innovative in the ways they attract, motivate and develop employees. Organizations will need to seek out innovative approaches to managing talent by broadening their focus to include the entire employee lifecycle. This will involve greater emphasis on segmenting and targeting talent, reaching out to alternative labor pools such as older workers and corporate alumni, and even developing an Internet presence in virtual worlds such as Second Life and on social networking sites such as Facebook to appeal to a more tech-savvy population. Managing this kind of talent market requires a structured, analytical approach to attracting, developing and retaining key personnel.

Rejuvenating the steel industry's talent pipeline

In response to challenges of attracting workers, the Timken Company is becoming more active in recruiting talent and in countering the negative image of the steel industry by visiting colleges not only to recruit but also to promote steel as an industry with high-tech, challenging and professional careers. Timken is also setting up a co-op program with local schools to hire operational workers.¹⁴

Also, United States Steel is implementing aggressive recruiting programs to create a skilled and diverse workforce that keeps the company at the forefront of the global steel industry. Its plant in Gary, Indiana, has a technical training team that is looking at partnering with a community college to develop customized training and educational programs designed to produce graduates who have the technical skills required to operate and maintain steel production facilities. The company also began management associate hiring programs in 2004 to make sure it has seasoned talent to replace people as they retire. In addition, the company instituted a series of technology classes called Blast Furnace Academy; it also has created a steel making and casting academy and is starting both a coke-making academy and a quality engineering academy.¹⁵

Going forward, companies must be innovative in the ways they attract and develop employees by:

- Marketing to prospective workers in the same way leading organizations market a product to a customer segment
- Using outreach methods that appeal to desirable target populations, including virtual worlds and social networking sites frequented by Generation Y
- Leveraging both e-learning and collaborative technologies for employee development to build a skilled workforce that is more flexible than the traditional full-time employee model
- Capturing knowledge from experienced workers before they leave the company.

Driving growth through workforce analytics

Given the pace of change in the metals and mining industries, we would expect the HR organization and the business units to engage in an ongoing dialogue about strategic workforce investments and transformation programs. Is this happening today?

The good news is that, after years of effort, HR sees itself slowly moving beyond its traditional transactional role and migrating toward a more strategic relationship with the business. The bad news is that just 46 percent of metals and mining companies in our study are actually conducting these strategic two-way discussions on a regular basis.

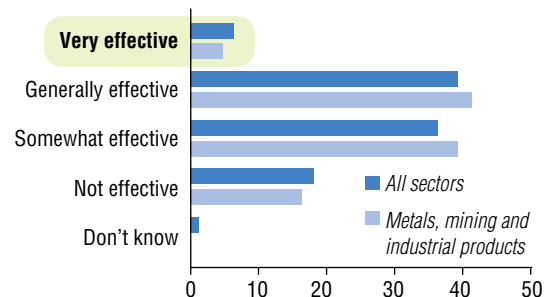
Missing from many of these strategic conversations are the analytics needed to develop insights and formulate business cases for investment. HR analytics

can provide answers to questions such as “How many people were promoted last year, by level?”, “How is the composition of my work force changing in emerging versus developed countries?”, or “How were safety levels improved by individuals who participated in a set of training initiatives?”

Our findings indicate that many companies are unable to analyze their workforces due to a lack of systems integration, an inability to extract data and a dearth of clearly defined metrics. Not only are organizations finding it difficult to link human capital information with data from Sales, Finance and other related departments, they are often unable to share information across applications used within HR itself. Overall, only 4 percent of the metals and mining respondents say they are *very effective* at using human capital data to make decisions about the workforce.

Figure 4. How effectively does your organization use human capital data and information to make decisions about the workforce?

(Percent)



Source: IBM Global Human Capital Study 2008.

Challenges surrounding integration and data quality are becoming important. Two of the top three items executives report will improve the use of HR data in making business decisions deal with technology tools and integration. However, previous research and leading practices suggest that companies that successfully leverage human capital information do more than just focus on implementing technology and connecting systems. They provide key metrics that can improve workforce productivity and performance, and they also enable their HR personnel to translate human capital data into executable strategy.

Better business performance through HR data integration

Rio Tinto recognized that it needed better human capital data to report to top management, and it needed to better handle and analyze the data to improve its business. Rio Tinto's immediate problem was its need for mining engineers and other skilled workers. In 2006, just one of its business units had 2,500 open positions.¹⁶

But recruiting is only one aspect of the company's overall plan for better aligning its human capital strategies and the overall business strategies. The company's first step to address this crucial issue was to connect its five separate recruiting systems into an integrated global system that could provide better data across the company. Rio Tinto plans for the entire company to be on that system by 2010, and it will be the basis for a comprehensive company-wide system to provide HR data and analytics to influence top business decisions.¹⁷

Remarking on what the company has achieved, Mike Ryan, who leads the talent management program for Rio Tinto, says, "We are able to streamline our recruiting and talent management processes and apply these processes consistently across all of our businesses. We are now in a position to better leverage the talents of our employees, our company's main asset."¹⁸

Going forward, companies can improve their analytic capabilities by:

- Ensuring that human capital data is of the same level of timeliness, quality and accuracy as would be expected of financial or operational data
- Implementing tools and technology that make it easier for both HR personnel and line management to access and apply human capital data
- Enabling HR personnel to analyze data by providing training, mentoring and other support for using analytic tools and approaches.

Conclusion

In today's rapidly changing metals and mining industries, an adaptable workforce is a critical element of business success. To achieve such a workforce, metals and mining companies first need a global model for leadership development. Companies also need to develop a talent model that can help them recruit, develop and retain valued segments of the employee population. This requires the ability to identify experts and foster an environment where knowledge and experience travel beyond traditional organizational boundaries. And companies need to encourage worker collaboration and knowledge sharing. Finally, metals and mining companies need to establish an infrastructure that supplies data and information about the current and projected state of the workforce, along with the ability to apply that information to develop strategic insights and business recommendations.

The HR function needs to take a lead role in providing strategic guidance on workforce issues and in designing human capital programs that can enhance workforce effectiveness. However, the human resources organization, by itself, cannot be expected to shoulder this entire effort. All members of the executive suite need to play a role in improving workforce performance.

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Get the full IBM Human Capital Study 2008

Be sure to read the complete study, “Unlocking the DNA of the Adaptable Workforce – The Global Human Capital Study 2008,” which addresses a wider set of industries, and compare your enterprise to this global data set through our online assessment tool located at:

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Methodology

The findings of this report are based on a study conducted by the IBM Global Business Services Human Capital Management practice and the IBM Institute for Business Value. More than 400 human resource executives from 40 countries participated in a structured interview designed to capture insights on the subject of workforce transformation. The majority of these interviews were conducted in person by IBM practitioners, with the remainder interviewed via telephone with the assistance of The Economist Intelligence Unit.

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The IBM Institute for Business Value, part of IBM Global Business Services, develops fact-based strategic insights for senior business executives around critical industry-specific and cross-industry issues.

Further information

To find out more about this study, please send an e-mail to one of the contacts listed or to iibv@us.ibm.com. To learn more about IBM solutions for metals, mining and other industrial products companies, visit:

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CONTACT US

Europe

Dirk Claessens
Global Leader, Industrial Products Industries
dirk.a.claessens@be.ibm.com

Americas

Carolyn K. Carlson
Partner
carolyn.carlson@us.ibm.com

Jose R. Favilla
Solutions Executive
jfavilla@us.ibm.com

Hemant K. Minocha
Partner
hemant.minocha@us.ibm.com

Australia

John Gower
Associate Partner
john.gower@au1.ibm.com

Fiona Key
Managing Consultant
fionakey@au1.ibm.com

Paul O'Dell
Partner
podell@au1.ibm.com

Martin Nimmo
Associate Partner
mnimmo@au1.ibm.com

Antony Shields
Associate Partner
shieldsa@au1.ibm.com

India

Sivaram Krishnan
Associate Partner
sivaram.krishnan@in.ibm.com

South Africa

Richard Mackinnon-Little
Consultant and Business Development Executive
richard.mackinnon-little@za.ibm.com

Japan

Yuhichi Shibata
Industrial Products Industry Leader, Asia-Pacific
SHIBATA@jp.ibm.com

IBM Institute for Business Value

Michael DeMarco
Senior Consultant
michael.l.demarco@us.ibm.com

Allan Henderson
Managing Consultant
hender@us.ibm.com

Eric Lesser
Associate Partner
elesser@us.ibm.com

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Somers, NY 10589
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05-08
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